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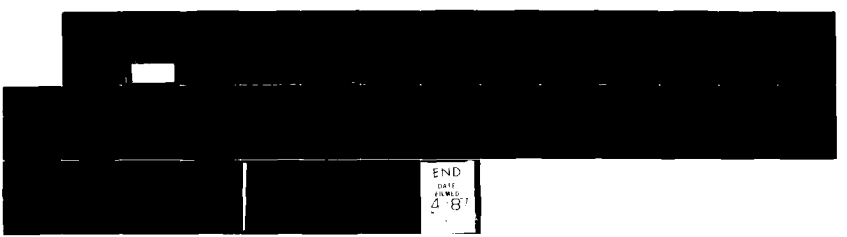

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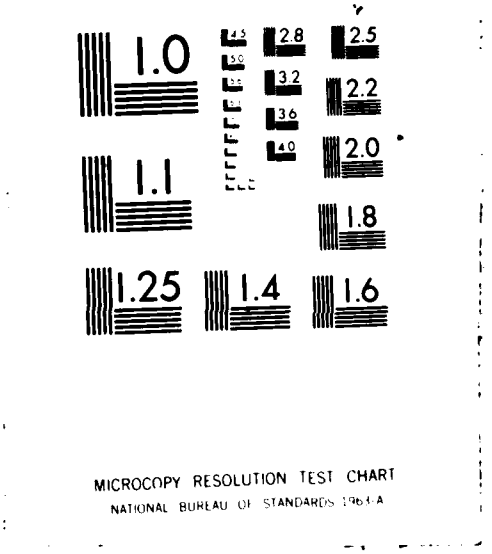
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ARINC Research Publication 4102-11-1-3664

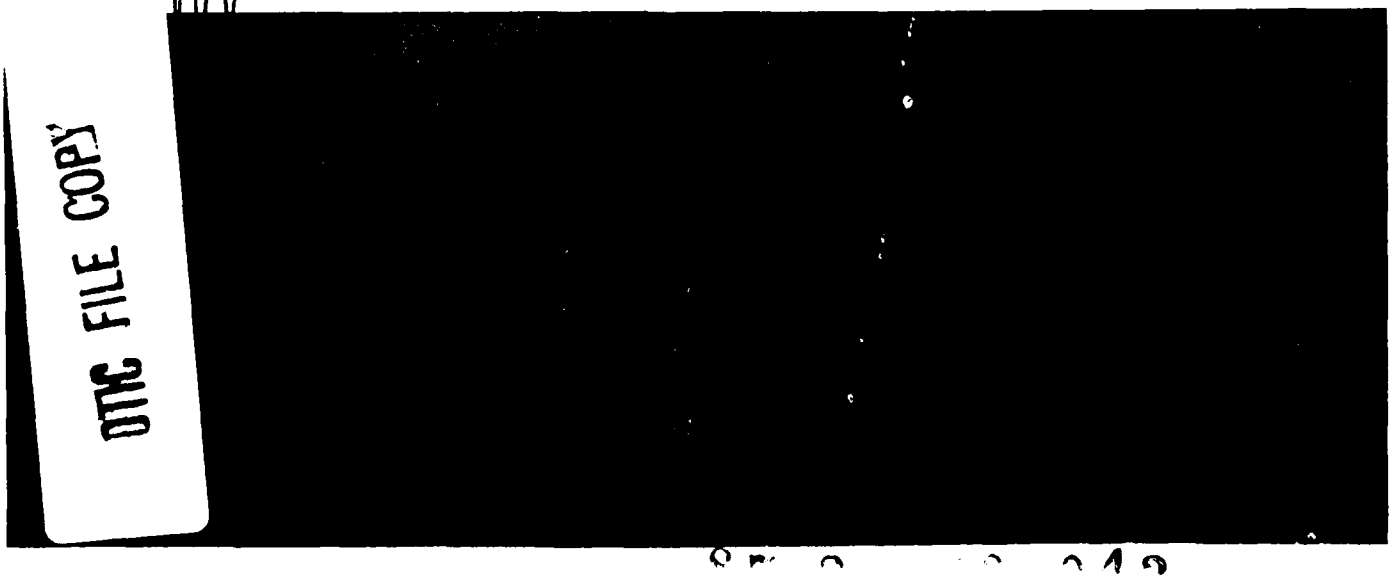
FINAL REPORT

U.S. AIR FORCE VISIBILITY AND MANAGEMENT OF OPERATING AND SUPPORT COSTS (VAMOSC) PROGRAM TASK ANALYSIS REPORT

July 1985

Prepared for
HEADQUARTERS AIR FORCE LOGISTICS COMMAND
MML (VAMOSC)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433
under Contract F41608-82-D-A012-0010

ARINC RESEARCH CORPORATION



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TASK ANALYSIS REPORT

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Prepared for

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under Contract F41608-82-D-A012-0010

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Publication 4102-11-1-3664

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FOREWORD

This final report completes the requirements of Contract Data Requirements List (CDRL) A001, Task Analysis Final Report, specified in Contract F41608-82-D-A012-0010. It summarizes the results of Task 1 activities.

The report explains the task analysis methods used to complete the study, the problems encountered, and the conclusions reached. It also summarizes the results of the task analysis completed for 14 processes for which VAMOSC data could be used.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

The Air Force Visibility and Management of Operating and Support Costs (VAMOSC) Program, HQ AFLC/MML(VAMOSC), Wright-Patterson Air Force Base, Ohio, is the Office of Primary Responsibility for the VAMOSC data system within the Air Force. It is tasked with establishing an automated, historical data base for operating and support (O&S) costs for aircraft weapon systems, components, and ground communications-electronics equipment.

The present VAMOSC Program comprises three subsystems: the Weapons Systems Support Cost (WSSC) System, the Component Support Cost System (CSCS), and the Ground Communications-Electronics (C-E) System. O&S costs are currently collected and stored in WSSC for approximately 150 aircraft at the mission, design, series (MDS) level; in CSCS for more than 300,000 components; and in C-E for 850 ground communications-electronics systems at the type, model, series (TMS) level. As the system matures, enhancements and improvements will be made to the existing subsystems and new subsystems will be developed, e.g., missiles and space systems.

The VAMOSC Program is a relatively new O&S cost-data resource. The data are to be used by the Air Force logistics and cost communities to perform life-cycle-cost analyses, trade-off analyses, system comparisons, and similar studies. Most members of these communities have had only minimum exposure to the data system or have limited or no knowledge of it. Therefore, as is the case for any new equipment or system, it is necessary to train the intended user in how to apply the VAMOSC data effectively.

A needs analysis previously conducted by ARINC Research Corporation (Contract F41608-82-D-A012-005) defined the VAMOSC training requirements. Three levels of users were identified in that analysis:

- Executive
- Middle Management
- Technical Support Staff

Training is necessary for all three levels; however, the depth and the intensity of the training differs among them. The Executive and Middle Management personnel require a broad picture of the VAMOSC Program, while the Technical Support Staff personnel, who will in most cases be the actual users of the VAMOSC data, must have a solid working knowledge of the program.

For the most effective training of the Technical Support Staff at the various Air Force activities in the VAMOSC Program and its intended uses, it was determined that the training program should meet the following requirements:

- Be available at the user's place of work
- Be available at any time so that it could be accessed at the user's convenience
- Not require extended absence from a person's job
- Provide an individualized, self-paced form of instruction
- Take place within the person's work area
- Use an available medium

On the basis of these requirements, a decision was made to develop a series of computer-based training modules for use on the Zenith 120 microcomputer. The subject matter of the modules would be tasks performed by logistics and cost analysts requiring the use of O&S data, such as life-cycle-cost management, trade-off analysis, life-cycle-cost forecasting, system comparison, and Program Objective Memorandum (POM) preparation.

1.2 SCOPE

The first step in the development of the computer-based training (CBT) modules was to conduct a task analysis. Fourteen processes were identified in the Statement of Work (SOW) as areas in which VAMOSC data might have application (see Table 1-1). The SOW specified that a task analysis be conducted for each process, with an Information Processing Analysis method being used to obtain the required information. Representative users and potential users were to be interviewed to determine the procedures followed by logistics and costs analysts when tasked to perform one or more of these processes.

This report details the results of the required task analysis performed in partial fulfillment of Contract F41608-82-D-A012.

TABLE 1-1

VAMOSC PROGRAM TASK ANALYSIS PROCESSES

1. Life-Cycle-Cost Management
2. Trade-Off Analysis
3. Budget Preparation
4. Life-Cycle-Cost Modeling/Forecasting
5. Logistics Forecasting/Management
6. Reliability/Maintainability Studies
7. Manpower Forecasting Management
8. Systems Comparison (Existing or Conceptual)
9. Defense Systems Acquisition Review Council (DSARC) Submissions
10. Evaluation of Product Performance Agreements (e.g., Warranties, Maintenance Agreements)
11. War Readiness Assessments
12. Program Objective Memorandum (POM) Submissions
13. Supportability Analysis
14. Readiness/Sustainability Analysis

1.3 PURPOSE OF TASK ANALYSIS

At the commencement of the task analysis, the following objectives were defined:

- Identify for each process listed in Table 1-1:
  - -- The purpose of the process
  - -- The major tasks that must be accomplished to complete each process successfully
  - -- The user's present data sources

-- The resources required and the time allocation

-- The user's knowledge of the VAMOSC system

- Determine what VAMOSC data the logistics and cost community would use when performing these processes as part of their job functions.

1.4 REFERENCES

The Appendix to this report lists documents and publications researched in completing the task analysis. They provide amplifying information on the VAMOSC Program, the task analysis procedure, and the processes for which the task analysis was completed.

1.5 REPORT ORGANIZATION

Chapter Two of this report defines task analysis and describes the models used in conducting the analysis and the limitations of each model. Chapter Three describes the approach used in conducting the analysis, the problems encountered, and the results. Chapter Four summarizes the task analysis for each process.

CHAPTER TWO

TASK ANALYSIS

2.1 DEFINITION OF TASK ANALYSIS

A task analysis is a process of listing all behaviors, both overt and covert, that are involved in the performance of a job. The behaviors are identified as tasks within each job and structured in a task hierarchy. Each task is listed in order to identify the knowledge, skills, and abilities required to perform it, as well as the resources (tools, equipments, documentation) that are needed, the conditions under which the task is to be performed, and the performance standards that must be met to complete it successfully.

Jobs that have definite, observable behaviors, such as a fixed maintenance procedure performed by an individual, relate well to the classical task analysis process. However, not all job functions have tasks that are observable behaviors. Some tasks require strictly verbal recall of subject matter or the manipulation of conceptual material. The processes selected for task analysis in this study have few observable behaviors. Information on how to perform the process is obtained by questioning subject-matter experts. This method of obtaining nonobservable behavior is essentially an indirect analysis. In trying to develop a procedural task hierarchy by using an interview, or questioning, method, it must be noted that we are dealing with human opinion and not discrete, precisely defined behaviors. If several people are questioned on the same process, they may have different approaches to or interpretations of the tasks that must be completed and the tools or equipments needed for task performance, even though their results may be essentially identical.

2.2 TASK ANALYSIS METHODOLOGY

In this study for the VAMOSC Program, two methods of analysis were employed: an Information Processing Analysis and a Gross Hierarchical Task Listing.

The Information Processing Analysis is used to describe nonobservable behaviors. It is an algorithmic model that identifies procedural tasks by means of a questioning process. Tasks are flow-charted to sort and order what is to be learned and performed. However, because of the ambiguity associated with identifying discrete procedural tasks and subtasks for

many of the processes for which the task analysis was being performed, it was seldom possible to complete a flow chart. The information processing method was used primarily to elicit data to develop a form of gross hierarchical task listing for those processes on which data were available. Primary tasks, with associated tools and equipments, and major data sources and data inputs were identified.

Verbal-information behaviors, that is, nonobservable behaviors, cannot always be related to each other hierarchically. It is often difficult to describe the structures with which they are associated. This was a problem in completing the task analysis for the identified processes. The two methods enabled the interviewer to obtain general descriptions of the processes in the form of main tasks to be completed, but it was difficult for the interviewee verbally to break these tasks down into discrete subtasks from which a problem-solving, relational approach could be indentified for a process. There are several reasons for this difficulty:

- The type of tasking within a given organization and the time allotted to complete a process. For example, the time required to complete a life-cycle-cost study for a weapon system ranged from one week to a year, depending on the sophistication of the system and the degree of detail required by the tasking.

- Whether or not standard models were used to complete a process. In-house models used by interviewees are often developed to meet a particular need and do not always follow the classical process more closely associated with a standard model. Therefore, interviewees described a procedure as it applied to their frame of reference.

- The type of training in the performance of a process. Interviewees with more formal cost-associated training were more verbal and descriptive in relating job tasks than those who had learned on-the-job and had never received any formal training.

CHAPTER THREE

TECHNICAL APPROACH

The task analysis is the first of four assignments to be completed by ARINC Research Corporation under Contract F41608-82-D-A012. The results of the analysis are to be used in the remaining contract efforts: (1) development of a prototype computer-based training (CBT) module, (2) a CBT module requirements analysis, and (3) the development of five CBT modules. The choice of subject matter for each module will be based on the results of the task analysis.

3.1 PROCEDURE

The initial step in conducting the task analysis was to acquire listings of the users of VAMOSC system data and to match users with one or more of the 14 processes identified. Names of Government VAMOSC users were obtained from the following:

- VAMOSC System WSSC Distribution List
- VAMOSC System CSCS Distribution List
- VAMOSC System C-E Distribution List
- Desmatics WSSC User Survey
- List of Attendees at the 1984 Tri-Service VAMOSC Conference

Telephone calls were made to the listed users in an attempt to identify personnel as being in one or more of the following categories:

- Know the VAMOSC Program and have used report data in one or several of the processes for which the task analysis was to be performed.
- Know the VAMOSC Program, perform one or more of the processes, but have not used VAMOSC data.
- Know very little about the VAMOSC Program but perform one or more of the processes.

In telephone conversations with approximately 40 persons, it was found that two-thirds had some knowledge of the VAMOSC Program. The degree of knowledge ranged from knowing all about VAMOSC and enthusiastically supporting the program to having heard of VAMOSC but possessing little amplifying information about it. Arrangements were made to meet with a representative number of these persons at their assigned locations. Because of the relatively small number of actual VAMOSC data users, it was necessary to schedule interviews with personnel who had limited knowledge about VAMOSC but were intimately associated with the processes for which the task analysis was being conducted.

An interview form (see Figure 3-1) was developed to help elicit the following types of information:

- General background data on the user
- Explanatory information on the process being addressed
- User's knowledge of the VAMOSC Program
- Tasks, conditions, and resources required to perform the procedure

3.2 RESULTS

Interviews were conducted at eight Air Force facilities with 22 persons (see Table 3-1). All of the interviewees had some familiarity with the VAMOSC Program. Ten of them had used VAMOSC report data in performing one of the 14 processes for which the task analysis was being conducted. Two had used it only once each to perform a study.

Life-Cycle-Cost Management, Systems Comparison, Life-Cycle-Cost Modeling/Forecasting, and Trade-Off Analysis are the tasks most frequently performed by the logistics and cost analysts who were interviewed (see Table 3-2). No one participated in Evaluating Product Performance Agreements; only one worked peripherally in Readiness/Sustainability Analysis, and only two had some association with Supportability Analysis.

3.2.1 Problems Encountered

The inability to readily identify personnel who are intimately familiar with some of the processes limited the quantity of data that could be collected. In most cases interviewees were able to give a general description of a process; but because of their involvement in only one aspect of the process, they were unable to define sequential tasks and subtasks precisely. For example, for War Readiness Assessment, one C-E group is tasked to determine where C-E equipments/systems are needed and what improvements can be made to ensure effective mobilization. This information is then channeled to the appropriate office, where it becomes part of a larger effort. The interviewees' knowledge of the total process was limited to

NAME: _____ DATE: _____

ORGANIZATION/OFFICE SYMBOL: _____

ADDRESS: _____

_____

PHONE: _____

1. Job description as it relates to VAMOSC.

2. Total months/years in this area of work.

3. What training did you receive for your present job?

4. What are the qualifications required to perform the job?

5. Which of the 14 task analysis processes do you perform in your job?

6. Process(es) that is (are) being addressed in this interview.

7. What VAMOSC subsystem data report(s) (WSSC, CSCS, C-E) is used in performing the process?

8. What tools, equipment, or other facilities are required to perform the job?

FIGURE 3-1

INTERVIEW FORM

9. What are the objectives of the process?

10. Who establishes the objectives?

11. How often do you perform this process?

12. What is the time requirement for performance?

13. What model(s) is used?

14. If you do not use VAMOSC data, where do you get the cost data needed to perform the process?

15. What is the end product?

16. Who receives the end product?

17. What use is made of the information contained in the end product?

18. What are the consequences if it is not done well or not done at all?

FIGURE 3-1 (continued)

Task	Data Elements	Data Source	Output	Notes

FIGURE 3-1 (continued)

TABLE 3-1

SUMMARY OF TASK ANALYSIS INTERVIEWS

Name	Code	Location	Process Performed	VAMOSC System Data User
M. McGrath	OSD/MRA&L	Washington, D.C.	N/A	
James Suttle Truet Scarborough Lt. William Price	AFCMD/SA	Kirtland AFB, NM	LCC Management Trade-Off Analysis LCC Modeling/Forecasting Manpower Forecasting Management Systems Comparison POM Submissions	Yes
Robert Macias	SA-ALC/MMEAI	Kelly AFB, TX	LCC Management LCC Modeling/Forecasting Reliability/Maintainability Studies Systems Comparison War Readiness Assessments Supportability Analysis	Yes
Mr. Rankin Capt. Hanna Patrick Gaffey	SA-ALC/ACM	Kelly AFB, TX	DSARC Submissions LCC Management	
Jack Bussio	SM-ALC/MMEA	McClellan AFB, CA	Trade-Off Analysis Reliability/Maintainability Studies Systems Comparison	Yes
Major McClendon	OSD/PA&E	Washington, DC	LCC Management	
Capt. Lochbaum Major G. Kage	HQ USAF/ACMC	Washington, DC	Budget Preparation	
Fl. Lt. Williams	HQ TAC/LGSWA	Langley AFB, VA	Systems Comparison Logistics Forecasting/Management Reliability/Maintainability Studies War Readiness Assessment Readiness/Sustainability Analysis	Yes
Capt. J. Zepka	HQ TAC/ACMC	Langley AFB, VA	POM Submissions DSARC Submissions	
Capt. S. Passarello	AFAFC/CMW	Lowry AFB, CO	LCC Modeling/Forecasting Budget Preparation	Yes
Jane O'Melia	LOC/SCAO	WPAFB, OH	War Readiness Assessments	
Steve Klipfel	AFLC/ACMCE	WPAFB, OH	Systems Comparison Trade-Off Analysis Budget Preparation LCC Modeling/Forecasting Logistics Forecasting Manpower Forecasting	Yes
Robert Read	AFALC/PTR	WPAFB, OH	Reliability/Maintainability Studies	Yes
Lt. Martens	AFWAL/FIA	WPAFB, OH	LCC Management LCC Modeling Trade-Off Analysis Systems Comparison Supportability Analysis	
Pram Mahaltra	ASD/XRP	WPAFB, OH	LCC Management Trade-Off Analysis Budget Preparation LCC Forecasting Logistics Forecasting Manpower Forecasting Systems Comparison DSARC Submissions	Yes
Major David Martin Major Anderson	HQ SPACECMD/LGX	Peterson AFB, CO	LCC Management	

TABLE 3-2

PERFORMANCE SUMMARY OF TASK ANALYSIS PROCESSES

Most Frequently Performed	
↑	Systems Comparison
	Life-Cycle-Cost Modeling/Forecasting
	Life-Cycle-Cost Management
	Trade-Off Analysis
	Reliability and Maintainability Studies
	Manpower Forecasting/Management
	Logistics Forecasting/Management
	Budget Preparation
	DSARC Submissions
	War Readiness Assessments
	Program Objective Memorandum (POM) Submissions
	Supportability Analysis
↓	Readiness/Sustainability Analysis
Least Frequently Performed	
Never Performed	Evaluating Product Performance Agreements

their areas of concern. Such fragmented tasking and information channeling appeared to be the norm for the following processes:

- Manpower Forecasting/Management
- Logistics Forecasting/Management
- Budget Preparation
- DSARC Submissions

- War Readiness Assessments

- Program Objective Memorandum Submissions

- Supportability Analysis

- Readiness/Sustainability Analysis

At the time the initial telephone conversations were made to identify personnel who worked with these processes, it was assumed that if a person stated that a process was performed as part of his/her job, then he/she had a working knowledge of the whole process. During the actual interviews, this assumption was proved to be incorrect. Most interviewees were familiar with only the part of the tasking that was their assigned responsibility. Because this information was not known before the time of the interview, no arrangements were made to interview personnel in other areas who were also involved with other procedural parts of the process.

Another factor that affected the success of the interviews was the interviewees' knowledge, or lack of knowledge, of the VAMOSC Program. A significant percentage of the allotted interview time, in most cases, was spent in a discussion of the purpose of the VAMOSC data base and the data elements it contained. Interviewees who were familiar with VAMOSC were eager to use what they saw as their only opportunity to verbalize their reactions to the program. Among the issues covered were the following:

- Misconceptions about the purposes of the VAMOSC Program

- The VAMOSC subsystems

- Why VAMOSC was established

- The feeder systems for the subsystems

- The report data elements

- How to request data and the time it takes to receive it

- The validity of the data

- Why they had not received products recently

- Availability of training

- VAMOSC data vs. Air Force cost factors in AFR 173-13

- Terminology: logistics vs. cost analysis definitions

- Missing data, such as contractor depot repair data, National Guard and Reserve data, and computer hardware and software costs

3.2.2 Present Uses for VAMOSC Data

The 22 persons interviewed have used VAMOSC data in the areas listed in Table 3-3.

3.2.3 Identified Future Uses for VAMOSC Data

During the interviews, the following areas were identified by interviewees as areas in which they might envision employing VAMOSC data in their jobs:

- Determination of O&S costs for use in sensitivity analysis
- Examination of reliability and maintainability (R&M) issues related to maintenance
- Determination of support investment costs
- Logistics forecasting - to determine problem areas in operating a system/equipment and to examine trends to forecast future problems
- Independent cost estimates
- Design-to-performance studies (trade-off analyses)
- Evaluation of modification packages for O&S costs and R&M data accuracy
- War Readiness assessment - to check the availability of spares to determine the number of spares needed to keep weapon systems operational during the first 30 days of conflict
- Manpower forecasting - to determine depot maintenance man-hour requirements and labor rates
- Budget preparation for the conceptual phase of the acquisition process
- Comparability analysis to determine which system is more reliable

TABLE 3-3

AREAS OF VAMOSC DATA USE

Use	VAMOSC Subsystem Used	Process
Determination of O&S cost drivers on a current weapon system	WSSC	Life-cycle costing
DSARC briefings to Weapon System Improvement Group	WSSC	DSARC submissions
Tracking of weapon system operational costs	WSSC	N/A (used as a check-and-balance system)
Checking of historical information to justify costs	WSSC	N/A (used as a check-and-balance system)
Cost projections	WSSC	N/A (used as a check-and-balance system)
Development of the base maintenance supply cost factor for AFR 173-13	WSSC	Budget preparation
Class IV modification justification	C-E	Trade-off analysis
Cost estimates for new acquisitions	WSSC	Life-cycle-cost forecasting
Determination of cost of putting a gun system on the ATF	CSCS	Systems comparison
Comparison of operating costs between an F-15 wing and an F-16 wing	WSSC	Systems comparison
Independent cost analysis for a major weapon system as a check for DSARC and POM submissions	WSSC	DSARC and POM submissions
Determination of the cost to modernize a weapon system	WSSC	Systems comparison

CHAPTER FOUR

SUMMARY OF INTERVIEW DATA

This chapter explains in more detail the task analysis data obtained for each process (Table 1-1 in Chapter One). Negative results are documented for those processes for which no amplifying information was obtained.

4.1 FACTORS FOR CONSIDERATION

It must be noted that since VAMOSC contains only O&S cost data, it provides only a portion of the data needed to complete a procedure. A good example is provided in the area of Life-Cycle Costing (see Figure 4-1). In the development of a total life-cycle cost for an existing or new system, operating and support costs represent only one of four major cost areas with which the analyst must be concerned.

Another factor that must be considered is that the term "Life-Cycle-Cost Management" is very broad in scope. The tasks described by interviewees to develop the life-cycle cost for a weapon system or equipment were basically the same for Trade-Off Analysis, Life-Cycle-Cost Modeling/Forecasting, and Systems Comparison. The tasking statements within an organization that defines the objectives of the study dictate the degree of variation for each study. The extent of the effort and the depth of coverage in an analysis will vary depending on the defined problem and the use to be made of the end product.

4.2 TASK ANALYSIS PROCESSES

4.2.1 Life-Cycle-Cost Management

(This is the only process for which an interviewee delineated the data elements and the data sources for each task.)

(a) Objectives:

(1) To provide a life-cycle-cost estimate for a conceptual system/equipment

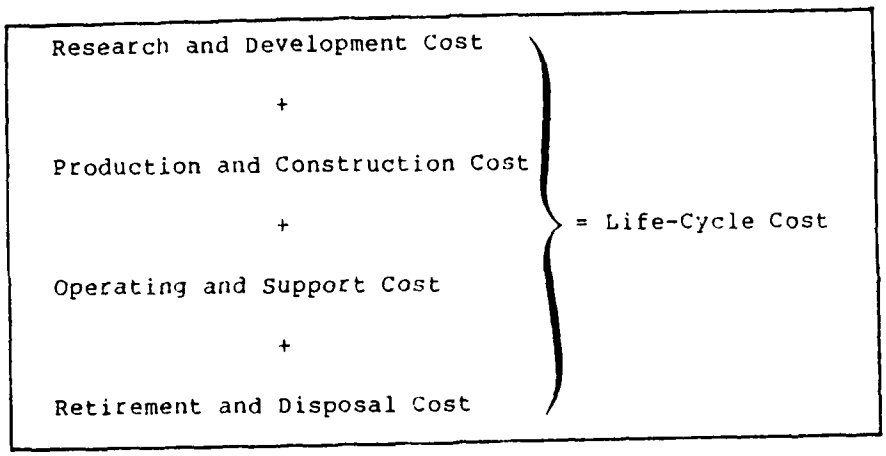

FIGURE 4-1

LIFE-CYCLE COST

(2) To provide cost detail so that cost drivers can be identified in cost-effectiveness trade-off studies

(3) To determine the most cost-effective approach to supporting a system throughout its life

(b) Required materials/references:

(1) Microcomputer

(2) Hand-held calculator

(3) AF Regulation 173-13, USAF Cost and Planning Factors

(4) AF Regulation 800-11, Life-Cycle-Cost Management Program

(c) Models used:

(1) Internally developed (within a specific organization) life-cycle-cost models

(2) Space system models

(d) Time to complete study: 6 to 12 months

(e) Sources of O&S cost data inputs:

(1) Telephone calls to knowledgeable people (a major source of O&S data for all interviewees)

(2) System Program Office

(3) Existing data systems

(4) AFR 173-13

(5) VAMOSC

(f) Task statements:

Task	Data Elements	Data Source
(1) Define system; identify subsystems	System specifications	Contractor
(2) Conduct literature search	Information on relevant system	In-house library; base library; DTIC (Defense Technical Information Center)
(3) Develop work breakdown structure	Total system items that affect concept of operations	System Program Office; contractors; manuals; "corporate" knowledge
(4) Define system ground rules	Life of a system; LCC approach	In-house
(5) Develop factors	Program level; R&D first unit; test program hardware; test program length	System Program Office; in-house; AF Operational Test and Evaluation Center
(6) Develop cost-estimating relationship	Work breakdown	In-house
(7) Develop life-cycle-cost model		In-house
(8) Write report	Results of study	In-house

4.2.2 Trade-Off Analysis

(a) Objectives:

(1) To determine which system/equipment is most cost-effective to acquire, operate, and support

(2) To provide an effective cost justification for modifying a system or equipment

(b) Required materials/references:

(1) Microcomputer

(2) AFLCM 800-4, Repair-Level Analysis

(3) AFLCR 57-21, Modification Program Management

(c) Models used:

(1) Modular Life-Cycle-Cost Model

(2) Quickly Support Cost Model

(3) Cost Analysis/Cost Estimating Model

(d) Time to complete study: 1 to 6 months

(e) Sources of O&S data inputs:

(1) D056 data system (base man-hours and maintenance data)

(2) G019C data system (depot production)

(3) D041 data system (depot condemnations)

(4) System Program Office

(5) ASD cost library

(6) VAMOSC (WSSC, C-E)

(f) Task statements:

(1) Trade-Off Study for Modifications

- Decide in which areas the modification will have the greatest impact, e.g., field maintenance vs. depot maintenance.

- Use data available for the affected area.

- Input data to Quickly Support Cost Model.

(2) Design-to-Performance Trade-Off Analysis

- Design engineer is tasked with project.

- Design engineer meets with propulsion, weight, stability engineers and cost analyst to set parameters.

- Cost analyst meets with engineers to obtain data.

- Present labor rates, profit percentage, and G&A percentage are established.

- Data are entered into Modular Life-Cycle-Cost Model.

- Output is checked against historical data.

- Report is written.

4.2.3 Budget Preparation

(a) Objectives:

(1) To develop an independent cost estimate to compare against POM inputs for presentation to the Defense Resources Board

(2) To develop the flying-hour factors for aircraft for inclusion in AFR 173-13

(b) Required materials/references:

(1) AFR 173-11, Independent Cost Analysis Program

(2) Microcomputer AFR 300-4, Air Force Data Dictionary General Instructions

(3) AFR 173-13, USAF Cost and Planning Factors

(c) Models used:

(1) Logistic Support Cost Model

(2) Munitions Model

(3) Cost-Oriented Resource Estimating (CORE) Model

(d) Time to complete study: 3 to 6 months

(e) Sources of O&S cost data inputs:

(1) Weapon System Cost Retrieval System (WSCRS)

(2) VAMOSC

(3) Air Logistics Commands (ALC)

(f) Task statements:

(1) Independent Cost Estimate

- Office is tasked with a project via a message, and a project team is formed.

- Preliminary research is conducted.
- Project team members at other Air Force activities are contacted, and a study plan is prepared.
- Tasking office is presented with a study plan by a team representative.
- Data collection process takes 3 to 6 weeks.
- Cost-estimating is completed 2 to 6 weeks later.
- Briefing paper and documentation are prepared.

(2) Flying-Hour Factors

- Examine five years of data for an aircraft that is in a steady state.
- Examine base maintenance cost by MDS.
- Sum the data by MDS and take averages.

4.2.4 Life-Cycle-Cost Modeling/Forecasting

See Section 4.2.1 (Life-Cycle-Cost Management).

4.2.5 Logistics Forecasting/Management

No interviewees were closely associated with this process in their jobs. Two included it peripherally as part of their work functions. They forecast problem areas with systems/equipments by examining trends. No other information was available on this subject.

4.2.6 Reliability/Maintainability Studies

(a) Objective: To determine which system has the best reliability and supportability over time.

(b) Required materials/references:

(1) AFALD 800-4, Aircraft Historical R&M Data

(2) AFR 800-18, Air Force Reliability and Maintainability Program

(3) MIL-STD-785B, Reliability Program for System and Equipment Development and Production

(4) MIL-STD-470A, Maintainability Program for Systems and Equipment

(c) Models used: None (data sent to another office for input into a Life-Cycle-Cost Model)

(d) Time to complete study: Six months (data collected and delivered for input to LCC model, results returned to tasking office, and report prepared)

(e) Sources of O&S cost data input:

(1) Maintenance Operational Data Access System (MODAS)

(2) D056 - Failure data required, not cost data

(f) Task statements:

(1) Determine what data sources are to be used for the study.

(2) Establish common definitions - use RIW (Reliability Improvement Warranty) data to determine definitions.

(3) Obtain information from the data sources.

(4) Enter data into LCC model.

(5) Analyze data.

(6) Develop conclusions.

(7) Prepare a briefing paper.

4.2.7 Manpower Forecasting Management

No interviewee was associated with this process.

4.2.8 Systems Comparison

See Section 4.2.1 (Life-Cycle-Cost Management).

4.2.9 Defense Systems Acquisition Review Council (DSARC) Submissions

(a) Objective: To develop independent cost analysis for comparison purposes.

(b) Required materials/references:

(1) Microcomputer

(2) AFR 178-11, Management of Statistical Information for Dissemination Outside the Department of the Air Force

(3) AFR 173-13, USAF Cost and Planning Factors

(4) AFLCP 173-10, AFLC Cost and Planning Factors

(5) AFR 178-1, Economic Analysis and Program Evaluation for Resource Management

(c) Models used:

(1) Logistic Support Cost Model

(2) Cost-Oriented Resource Estimating Model

(3) Budget Analysis Cost-Estimating Model

(d) Time to complete study: 2 months

(e) Sources of O&S cost data inputs:

(1) Old studies

(2) Telephone calls to knowledgeable people

(3) AFR 173-13, USAF Cost and Planning Factors

(f) Task statements:

(1) Conduct a literature search.

(2) Obtain cost data from the System Program Manager, Maintenance/Materials personnel, and AFR 173-13.

(3) Determine what cost model is to be used.

(4) Enter data into model.

(5) Write a report documenting results of the study.

4.2.10 Evaluation of Product Performance Agreements

No data available from interviewees.

4.2.11 War Readiness Assessments

Most War Readiness Assessment information is classified; therefore, the quantity of data obtained during the interview was limited.

(a) Objective: To determine how to keep aircraft flying during time of war

(b) Required materials/references: Not cited by interviewee

(c) Sources of O&S data inputs:

(1) Weekly telephone call to depots provides depot maintenance data

(2) Weapon System Management Information System

(3) Combat Supplies Management System

(d) Model used: Sustainability Assessment Model

(e) Time to complete study: No time indicated by interviewee

4.2.12 Program Objective Memorandum (POM) Submissions

See Section 4.2.3 (Budget Preparation).

4.2.13 Supportability Analysis

No data available from interviewees.

4.2.14 Readiness/Sustainability Analysis

See Section 4.2.11 (War Readiness Assessments).

APPENDIX

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A178412
	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) USAF VAMOSC Program Task Analysis Report	5. TYPE OF REPORT & PERIOD COVERED Technical Report
	6. PERFORMING ORG. REPORT NUMBER 4102-11-1-3664
7. AUTHOR(s) Ruth Ehrensberger	8. CONTRACT OR GRANT NUMBER(s) F41608-82-D-A012-0010
9. PERFORMING ORGANIZATION NAME AND ADDRESS ARINC Research Corporation 2551 Riva Road Annap[illegible] MD 21401	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS HQ AFLC/ACCV Wright-Patterson AFB, OH 45433	12. REPORT DATE July 85
	13. NUMBER OF PAGES 31
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report) Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

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18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

VAMOSC
[illegible]
Life-cycle Costing

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report presents the results of the Visibility and Management of Operating and Support Costs (VAMOSC) task analysis study performed by ARINC Research Corporation. It explains the task analysis methods used, the problems encountered, and the conclusions reached. It also summarizes the results of the task analysis completed for 14 processes for which VAMOSC data could be used.

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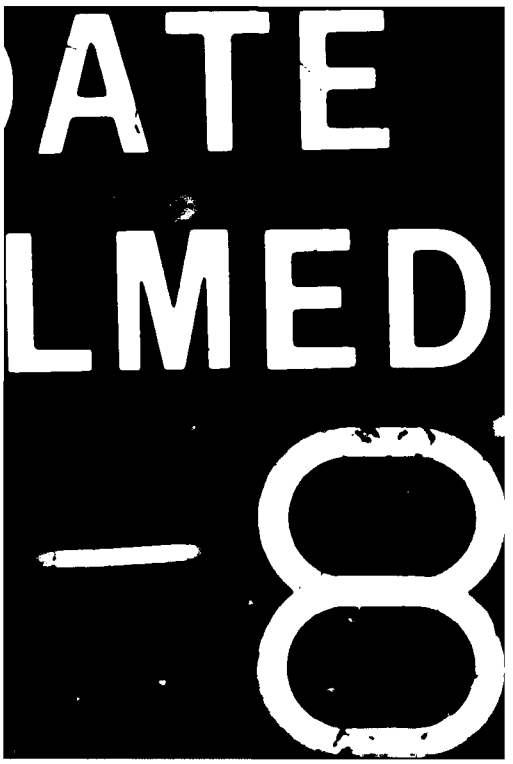
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